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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

RUTHKOSKY, MARK

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/823,863	Applicant(s) MIYAHISA ET AL.	
	Examiner Mark Ruthkosky	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/7/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

The amendment to the claims submitted 12/26/2007 is noted. Claims 1-11 and 19-20 are cancelled by applicant. All rejections based on these claims are now moot. Claims 12-18 are pending.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(c) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 12-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Hideo et al. (JP 62-136759.)

The instant claims are to a cylindrical battery comprising an electrode group formed from battery electrode plates of a positive electrode and a negative electrode spirally wound with a separator interposed there between; and a cylindrical battery case for housing said electrode group; at least one of the battery electrode plates being manufactured by a method comprising: impregnating an entire porous core substrate, which forms the at least one battery electrode plate

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and is shaped like a thin plate with an active material, press working on said active material impregnated core substrate to form a rail shaped protrusion protruding above pressed portions and defining boundaries with said recessed portions, removing the active material from the rail-shaped protrusion to form said rail-shaped protrusion into a core substrate exposed section by applying ultrasonic vibrations to said rail shaped protrusion; compressing said core substrate exposed section down to an identical level with said pressed portions to produce substantially true straight boundaries between said core substrate exposed section and said pressed portions; and cutting said core substrate exposed section along a straight line displaced from said substantially true, straight boundaries by a predetermined width after said compressing to form said battery electrode plate with a current collector having a straight edge formed by the cutting of the core substrate exposed section and said predetermined width defined by the straight edge and an opposing one of said true straight boundaries.

The Hideo et al. (JP 62-136759) reference teaches a cylindrical battery comprising an electrode group formed from battery electrode plates of a positive electrode and a negative electrode spirally wound with a separator interposed there between; and a cylindrical battery case for housing said electrode group (see the abstract and figures.) The edge of the electrode includes an exposed area forming a current collector. The current collector has a straight edge. The straight edge does not deviate from straight. The exposed edge is taught to have *no* active material (abstract.)

The reference does not teach the process of making the battery as noted in the product claim. The methods steps of claims 5-18 are to process steps and intermediate features of the battery. All of the claim limitations have been considered with regard to structure, but the

process of making the battery is not given patentable weight. MPEP 2113 states, “Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” Thus, the reference reads upon the product and the claims are anticipated.

Claims 12-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Mikiaki et al. (JP 2000-077,054.)

The Mikiaki et al. (JP 2000-077,054) reference teaches a cylindrical battery comprising an electrode group formed from battery electrode plates of a positive electrode and a negative electrode spirally wound with a separator interposed there between; and a cylindrical battery case for housing said electrode group (see the abstract and figures.) The edge of the electrode includes an exposed area forming a current collector. The current collector has a straight edge. The straight edge does not deviate from straight. The reference does not teach the process of making the battery as noted in the product claim. The methods steps of claims 5-18 are to process steps and intermediate features of the battery. All of the claim limitations have been considered, but the process of making the battery is not given patentable weight. MPEP 2113 states, “Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the

same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” Thus, the references read upon the product and the claims are anticipated.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12-18 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hideo et al. (JP 62-136759) OR Mikiaki et al. (JP 2000-077,054), as previously applied.

The teachings of Hideo et al. (JP 62-136759) and Mikiaki et al. (JP 2000-077,054) have been presented. The references do not teach the process of making the battery as noted in the product claim. The methods steps of claims 5-18 are to process steps and intermediate features of the battery. All of the claim limitations have been considered with regard to structure, but the process of making the battery is not given patentable weight. MPEP 2113 states, “Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” If the claims are not considered to anticipate the claims due to the

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process limitations, the claims are obvious over the prior art based on the teachings of the reference, which disclose all of the limitations of the product.

Claims 12-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hideo et al. (JP 62-136759) OR Mikiaki et al. (JP 2000-077,054), as previously applied.

The teachings of Hideo et al. (JP 62-136759) and Mikiaki et al. (JP 2000-077,054) have been presented. If it is found that the following limitation is not part of the process steps, but included in the product, the rejection under 35 U.S.C. 103, applies. The references do not teach that the straight boundaries exhibiting a deviation from straight of no more than 0.2 mm. It would have been obvious to one of ordinary skill in the art at the time the invention was made to prepare the straight edges of the active material on the substrate to be substantially straight as shown in the references in order to apply a straight lead onto the exposed section of the substrate, as taught in both references, without overlapping active material. If the active material boundary is not straight, the lead will overlap the active material and not be securely bonded to the substrate plate. The artisan would have found the claimed invention to be obvious in light of the teachings of the references.

If it is found that the following limitation is not part of the process steps, but included in the product, the rejection under 35 U.S.C. 103, applies. The reference does not teach that the exposed edge has 4% or less active material. It would be obvious to one of ordinary skill in the art at the time the invention was made to prepare the exposed area of the on the substrate with no active material in order to weld a lead onto the exposed section of the substrate, as taught in the reference, to provide a secure bond between the lead and the substrate. If the active material

boundary is not exposed, the lead will overlap the active material and not be securely bonded to the substrate plate. The artesian would have found the claimed invention to be obvious in light of the teachings of the references.

Response to Arguments

Applicant's arguments filed 12/26/2007 have been fully considered but they are not persuasive.

Applicant notes in the arguments that the rejections previously set forth are the same as those of the previous office action and hence, applicants reiterate and incorporate the arguments in their remarks. The previous responses to arguments are noted.

The applicant argues that the claims have been amended to correspond to the process claims of patent 6,878,173 and that the examiner must give consideration to all of the claim limitations. The limitations have been given full consideration, but are only given patentable weight with regard to the cylindrical battery product limitations. MPEP 2113 states, "Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process."

A. SUBSTANTIALLY TRUE STRAIGHT BOUNDARIES. Applicants submit that the process outlined in the present product claims produces a product, which is distinguishable by structural characteristics over the products produced by either one of the prior art references. For

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example, applicant argues that Claim 12 includes features, which is not found in the applied references singularly or in a combination of the references. In particular, the features relating to the 4% or less residue level, the straight boundaries with a deviation of no more than 0.2 mm, and the strength of exposed substrate being substantially equal to the pressed portion are not taught as a combination or individually by the references.

It is first noted that these limitations are not found in the body of the claim, but represent specific intermediates of the method. For example, the straight boundaries with a deviation of no more than 0.2 mm are then cut in a subsequent step of the process. This limitation with respect to the intermediate of a claim cannot be given weight when the claim is to the end product. With respect to the rejection, the lines are simply considered straight.

B. 4% OR LESS RESIDUAL ACTIVE MATERIAL BY WEIGHT IN SAID VOLUME OF SAID CORE SUBSTRATE EXPOSED SECTION. Applicants submit that with respect to the 4% or less residue level, the Hideo reference teaches that the active material is removed using a brush and air blower resulting in an increased likelihood of unsatisfactory welding occurring during attachment of the current collector formed due to residue of the active material left in the projected part by the brush operation. Again, the process of removing the active material gives an intermediate. Even assuming that the feature is claimed in the final product, applicant's declaration that brushing gives an amount with a lowest concentration of residue of 4.37 vol. % is not convincing because one of ordinary skill in the art would realized that the amount of brushing, the type of brush and the mechanical processing determines the amount of residue removed. If the brushing is done for a longer period, it will remove more and more residue. Thus, the results are variable. The reference states that no active material remains.

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This cannot be ignored. Applicant offers on page 6, in Table II that the amount of residue averages 4.29% with a maximum of 4.6%. This is clearly over 4%. This data is not persuasive. As the applicant's arguments are based on the data shown in the declaration, the arguments are not persuasive. Applicant argues that the claim does not recite a decimal value, such as 4.0 and since the average test result is 4.29%, this value rounds to 4%. It is noted that the claims state 4% or less. This amount does not include values over 4% such as 4.29%. Applicant has failed to distinguish the claimed product from the teachings of the prior art, which clearly teach a cylindrical battery comprising an electrode group formed from battery electrode plates of a positive electrode and a negative electrode spirally wound with a separator interposed there between; and a cylindrical battery case for housing said electrode group.

C. SAID CORE SUBSTRATE EXPOSED SECTION, AFTER SAID REMOVING OF SAID ACTIVE MATERIAL AND SAID COMPRESSING, BEING SUBSTANTIALLY EQUAL TO A STRENGTH OF SAID PRESSED PORTIONS. Applicant argues that, "the Examiner 'further again states that the Hideo reference relates that "no residue" is left and that one would realize that brushing done For a longer period would remove all residue.'" Applicant submits that the "no residue" result in combination with "brushing for a longer period" is merely based on the Examiner's speculation and lacks appreciation of the actual manufacturing constraints of the technology involved. This argument is not persuasive. First, the reference teaches no residue. Second, the rejection states that one of ordinary skill in the art would realize that the amount of brushing, the type of brush and the mechanical processing determines the amount of residue removed. If the brushing is done for a longer period, it will remove more and more residue. Thus, the results are variable. The reference states that no active material

remains. Applicant argues that the reference is not enabling for the claim residue level and strength limitations, however no evidence is presented to support this statement.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Examiner Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Ruthkosky whose telephone number is 571-272-1291. The examiner can normally be reached on FLEX schedule (generally, Monday-Thursday from 9:00-6:30.) If attempts to reach the examiner by telephone are unsuccessful, the examiner's

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supervisor, Patrick Ryan can be reached at 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free.)

/Mark Ruthkosky/

Primary Examiner, Art Unit 1795